

Claims

[c1] 1. A water supply sub-system for connection to a main water supply system, said sub-system comprising:
a storage tank having an inlet for connection to said main water supply system, and an outlet;
a flow control valve connected to said inlet;
an outlet line connected to the outlet of said storage tank;
a pump connected to said outlet line;
a sub-system supply line connected to said pump, said supply line forming a fluid flow feedback loop to said storage tank;
at least one branch connection connected to said sub-system supply line;
a shunt feedback line connected to said pump and to said tank in parallel fluid flow to said supply line;
a pressure regulatory assembly in said shunt feedback line, and
an inlet coupling connected to said inlet adapted to selectively connect or disconnect said inlet to said main water supply system and a mating coupling in fluid communication with said tank, said mating coupling being adapted to selectively receive said inlet coupling,

whereby an independent disinfectant system may be established in said subsystem.

- [c2] 2. A sub-system according to claim 1 wherein said mating coupling is in said shunt feed-back loop.
- [c3] 3. A sub-system according to claim 1, further comprising a disinfectant inlet port in said tank.
- [c4] 4. A sub-system according to Claim 1 further comprising a check valve in said inlet.
- [c5] 5. A sub-system according to Claim 1 further comprising a fluid volume control in said tank connected to said inlet.
- [c6] 6. A sub-system according to Claim 5 wherein said fluid volume control comprises an inlet valve and a float arm coupled to said inlet valve.
- [c7] 7. A sub-system according to claim 1 wherein said pressure valve further comprises a pressure sensor.
- [c8] 8. A sub-system according to claim 1 wherein said tank further comprises a filtered vent.
- [c9] 9. A sub-system according to Claim 1 wherein a water-using device is connectable to said branch connection to receive water from said water supply sub-system.

- [c10] 10. A sub-system according to Claim 9 wherein said water using device is a dialysis machine.
- [c11] 11. A sub-system according to Claim 1 further comprising a drain connected to said sub-system supply line.
- [c12] 12. A sub-system according to Claim 1 wherein said shunt feedback loop is disposed downstream from said at least one branch connection.
- [c13] 13. A sub-system according to Claim 1 in which said storage tank has a spray head disposed therein, said spray head being connected to said feedback loop to receive recirculated water therefrom and spray said recirculated water into said storage tank.
- [c14] 14. A sub-system according to Claim 1 in which said storage tank has a spray head disposed therein, said spray head being connected to said inlet to said tank and being disposed to spray inlet water into said storage tank.
- [c15] 15. A sub-system according to Claim 1 further comprising an ultrafiltration device disposed in said supply line downstream of said pump and upstream of said at least one branch connection.
- [c16] 16. A water supply system comprising

a water processing unit;

a main inlet line connected to said water processing unit;

a main outlet line leading from said water processing unit;

a plurality of main branch connections emanating from said main outlet line; and

a water supply sub-system connected to said main water supply system, said sub-system comprising:

a storage tank having an inlet and an outlet, said inlet being connectable to one of said plurality of main branch connections with an inlet coupling and having a flow control valve connected thereto;

an outlet line connected to the outlet of said storage tank;

a pump connected to said outlet line;

a sub-system supply line connected to said pump;

at least one sub-system branch connection connected to said sub-system supply line;

a shunt feedback line connected between said supply line and said tank;

a pressure regulatory assembly in said shunt feedback line, and

a mating coupling in fluid communication with said shunt feedback line and adapted for selectively coupling with said inlet coupling, forming an isolated sub-system.

- [c17] 17. A water supply system according to claim 16 further comprising a disinfectant access port wherein disinfectant can be circulated in said sub-system when said inlet coupling is connected to said mating coupling.
- [c18] 18. A water supply system according to Claim 17 wherein the water processing unit is a water purification device.
- [c19] 19. A water supply system according to Claim 17 wherein the water processing unit is a water storage device.
- [c20] 20. A water supply system according to Claim 17 wherein a water-using device is connected to one of said plurality of main branch connections emanating from said main outlet line.
- [c21] 21. A method for providing water from a main water supply system to a high demand device without adversely impacting the water flow parameters of the water flowing in said main water supply system, said method comprising,
connecting a supply sub-system to said main supply system, said sub-system comprising:
a storage tank having an inlet for connection to said main water supply system, and an outlet;

an outlet line connected to the outlet of said storage tank;

a pump connected to said outlet line;

a shunt feedback line connected between said pump and said tank; and

a pressure regulatory assembly in said shunt feedback line;

connecting a high demand device to said supply sub-system;

flowing water from said main water supply system and into said sub-system through a flow control valve at a reduced rate such that water pressure in said main supply system is relatively constant;

flowing water in said sub-system to said high demand device for its use; and

controlling water supply to said high demand device by regulating water pressure in said shunt feedback line by using a pressure regulator assembly, and,

at selected intervals, disinfecting the sub-system using a chemical whereby the sub-system is isolated from main supply system during the disinfecting step by disconnecting said inlet from said main water system and

connecting said inlet to a high-pressure side of said pump.